



## **Chapter Seven**

# **ENVIRONMENTAL EVALUATION**

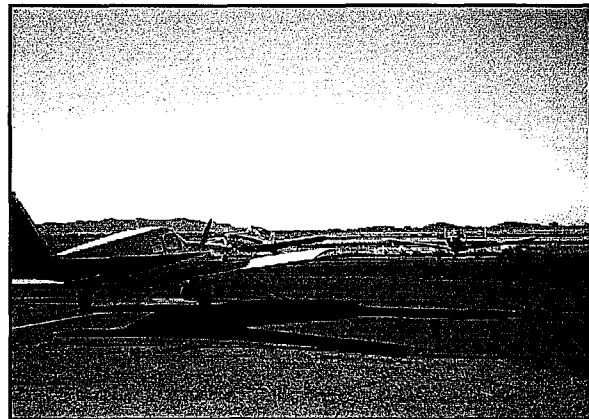
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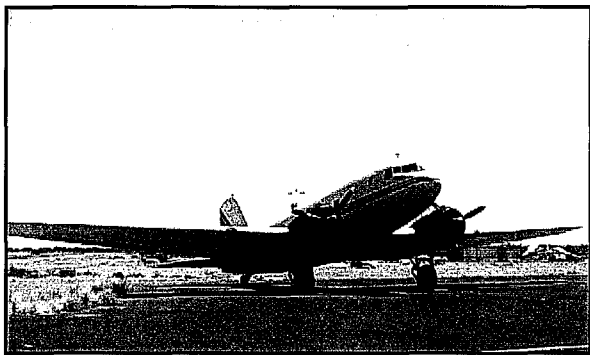
# ENVIRONMENTAL EVALUATION

Analysis of potential environmental impacts associated with proposed airport development projects is an important component of the Airport Master Plan process. The primary purpose of this chapter is to evaluate the proposed development program for Eloy Municipal Airport to determine whether proposed development actions could individually or collectively affect the quality of the environment.

A major component of this evaluation is to coordinate with appropriate federal, state, and local agencies to identify potential environmental concerns that should be considered prior to the design and construction of new facilities at the airport. Agency coordination consisted of a letter requesting comments and/or



information regarding the proposed airport development. Issues of concern that were identified as part of this process are presented in the following discussion. The letters received from various agencies are included at the end of this Appendix.



Any major improvements planned for Eloy Municipal Airport will require compliance with the National Environmental Policy Act of 1969, as amended (NEPA) for projects not "categorically excluded" under *FAA Order 5050.4, Airport Environmental Handbook*. Compliance with NEPA is generally satisfied by the preparation of an Environmental Assessment (EA) or,

where significant un-mitigable impacts are expected, an Environmental Impact Statement (EIS). This section of the Airport Master Plan is intended to supply a review of environmental considerations.

## **PROPOSED DEVELOPMENT**

As a result of the Airport Master Plan analysis, a number of airport improvements have been recommended for implementation over the 20-year planning period. The Airport Layout Plan (**Chapter Five**) illustrates the development proposed during this period. The following is a list of the major projects planned for completion. The timing of these projects is described in **Chapter Six**.

### ***Airside Improvements***

- Extend Runway 2-20 by 1,600 feet for an ultimate runway length of 5,500 feet.
- Widen Runway 2-20 to 75 feet.
- Strengthen pavement of Runway 2-20 to 30,000 pounds dual wheel loading (DWL).
- Construct full-length parallel taxiway 240 feet centerline to centerline from runway; abandon or remove existing taxiway pavement.
- Extend Medium Intensity Runway Lights (MIRL).
- Install Medium Intensity Taxiway Lights (MITL).
- Install Runway End Identifier Lights (REIL).
- Install Precision Approach Path Indicator Lights (PAPI-2).
- Establish GPS approach to each runway end.
- Implement pavement preservation.
- Acquire land, as needed for runway extension and runway protection zone (RPZ).

### ***Landside Improvements***

- Construct three 6-unit T-hangar facilities.
- Construct three conventional hangars.
- Construct T-hangar access taxilanes.
- Construct aircraft parking apron.
- Construct new general aviation terminal facility.
- Pave/construct vehicle parking areas (total of 130 spaces).
- Road improvements to Lear Drive.
- Construct new airport access road.
- Implement pavement preservation.
- Acquire 4.1 acres of land for T-hangar development area.

## **ENVIRONMENTAL CONSEQUENCES - SPECIFIC IMPACTS**

The following text briefly examines the airport development actions and their potential to cause significant environmental impact. The following subsections address each of the specific impact categories outlined by *FAA Order 5050.4A*.

## NOISE

Aircraft sound emissions are often the most noticeable environmental effect an airport will produce on the surrounding community. If the sound is sufficiently loud or frequent in occurrence, it may interfere with various activities or otherwise be considered objectionable.

To determine noise related impacts that the proposed development could have on the environment surrounding Eloy Municipal Airport, noise exposure patterns were analyzed for the years 2000 and 2015. Year 2000 noise contours are based on an estimated number of aircraft operations since there is no tower located at the Airport. The 2015 contours represent the highest number of forecast aircraft operations of the planning period and are based on operations forecasts described in **Chapter Two**.

### Noise Contour Development

The basic methodology employed to define aircraft noise levels involves the use of a mathematical model for aircraft noise prediction. The *Yearly Day-Night Noise Level (DNL)* is used in this study to assess aircraft noise. DNL is the metric currently accepted by the Federal Aviation Administration (FAA) as an appropriate measure of cumulative noise exposure at airports. The FAA defines the 65 DNL noise contour as the threshold of incompatibility, meaning levels below 65 DNL are considered compatible with all underlying land uses.

DNL is defined as the average A-weighted sound level as measured in decibels (dB), during a 24-hour period; a 10 dB weighting is applied to noise events occurring at night (10:00 p.m. to 7:00 a.m.). DNL is a summation metric which allows objective analysis and can describe noise exposure comprehensively over a large area.

Since noise decreases at a consistent rate in all directions from a source, points of equal DNL noise levels are routinely indicated by means of a contour line. The various contour lines are then superimposed on a map of the airport and its environs. It is important to recognize that a line drawn on a map does not imply that a particular noise condition exists on one side of the line and not on the other. DNL calculations do not precisely define noise impacts. Nevertheless, DNL contours can be used to: (1) highlight existing or potential incompatibilities between an airport and any surrounding development; (2) assess relative exposure levels; (3) assist in preparation of airport environs land use plans; and (4) provide guidance in the development of land use control devices, such as zoning ordinances, subdivision regulations and building codes.

The noise contours for Eloy Municipal Airport were developed from the Integrated Noise Model, Version 6.0. The Integrated Noise Model (INM) was developed by the Transportation Systems Center of the U.S. Department of Transportation at Cambridge, Massachusetts, and has been specified

by the FAA as acceptable for federally funded noise analysis.

The INM is a computer model which accounts for each aircraft along flight tracks during an average 24-hour period. These flight tracks are coupled with separate tables contained in the data base of the INM which relate to noise, distances and engine thrust for each make and model of aircraft type selected.

Computer input files for the noise analysis assumed implementation of the recommended development of the airport as identified on the Airport Layout Plan. The input files contained operational data, runway utilization, aircraft flight tracks, and fleet mix as projected in the plan.

Estimates of aircraft operations and fleet mix for the year 2000 and forecasts of future aviation activity in 2015 were used as input to the noise model. In addition, the fleet mix is summarized in **Table 7A, Operations and Fleet Mix**. For more detailed information on the aviation forecasts for Eloy Municipal Airport refer to **Chapter Two, Aviation Demand Forecasts**.

The flight tracks used in this analysis provide for a left-side traffic pattern and straight-in arrivals, consistent with the *Airman's Information Manual* guidelines for non-towered airports.

Aircraft departures and arrivals are evenly split between the two runway ends (50 percent to the north and 50 percent to the south. This is expected to continue through the planning period.

**TABLE 7A**  
**Operations and Fleet Mix**

	2000	2015
Local Operations		
Single-engine piston	3,300	20,200
Multi-engine piston	500	2,700
<b>Total Local Operations</b>	<b>3,800</b>	<b>22,900</b>
Itinerant Operations		
Single-engine piston	8,400	46,800
Multi-engine piston	1,600	6,200
Turboprop	9,300	13,600
Twin Turboprop	29,000	29,000
Business Jet	100	500
<b>Total Itinerant Operations</b>	<b>48,400</b>	<b>96,100</b>
<b>Total Operations</b>	<b>52,200</b>	<b>119,000</b>

As previously indicated, the time-of-day operations occur is a critical factor in the noise analysis. Operations which occur in the evening or at night are subject to a weighting compared with similar operations which occur during the day. This reflects the increased sensitivity of people to noise during these hours. Overall, approximately 90 percent of operations occur during the day, with the remaining 10 percent occurring at night. This is expected to continue throughout the planning period.

### Results of Noise Analysis

Output data selected for calculation by the INM were annual average noise contours in DNL. *FAA Order 5050.4A* recognizes the 65 DNL contours as the threshold of significant impact, indicating that land areas outside of the 65 DNL

contour are considered compatible with airport noise. The 60 DNL noise contour is provided to identify those areas within the 60 DNL contour band which are considered marginally affected by airport noise. No mitigation is required by the FAA within these areas, in accordance with NEPA guidelines.

The aircraft noise contours generated from aviation forecasts for Eloy Municipal Airport are illustrated on **Exhibit 7A, 2000 Aircraft Noise Exposure** and **Exhibit 7B, 2015 Aircraft Noise Exposure**. Based on 2000 operational levels, the 65 DNL noise contour encompassed less than 88 acres; for the 2015 year forecasts, the 65 DNL and above contour encompasses approximately 172 acres. **Table 7B, Area of Noise Contour**, reports the estimated size of each contour for the years 2000 and 2015.

**TABLE 7B**  
**Area of Noise Contours**  
**Eloy Municipal Airport**

Year	Noise Contour Area (in acres)		
	65 DNL	70 DNL	75 DNL
2000	87.36	29.76	9.22
2015	171.58	67.33	20.48

**Source:** INM, Version 6.0, Coffman Associates analysis.

As shown on **Exhibit 7A**, the year 2000 70 DNL noise contours remains largely on Airport property; however, the 65 DNL contour line extends off airport property to the north, west, and south. The 65 DNL contour extends approximately 750

feet north and 700 feet south of the existing property boundary. In addition, along the west side of the runway, the 65 DNL contour falls approximately 150 feet off existing airport property. As illustrated on the exhibit, the 65 DNL contour falls

over compatible land uses: undeveloped desert and agricultural fields.

As shown on **Exhibit 7B**, with development of the 1,600-foot runway extension, by 2015 the Airport's 65 DNL noise contour is expected to double in area. To the south of the airfield, this contour of significance is expected to extend nearly 1,100 feet off airport property, over the existing farm field. To the north, it is expected to extend approximately 1,200 feet beyond the planned airport property boundary, over undeveloped desert. To the west, the contour is expected to extend 300 feet and to the east approximately 200 feet off airport property. No noise sensitive land uses are located within the 65 DNL contour.

As the 65 DNL noise contour will not encompass any noise-sensitive land uses, no significant noise impacts are expected to occur with implementation of the proposed development program.

## **COMPATIBLE LAND USE**

Aircraft noise contours can be used as a guide to determine potential incompatible land uses in the vicinity of airports. To identify noise sensitive land uses potentially impacted by aircraft noise, the noise contours are overlaid on current and future land use maps for the airport and vicinity.

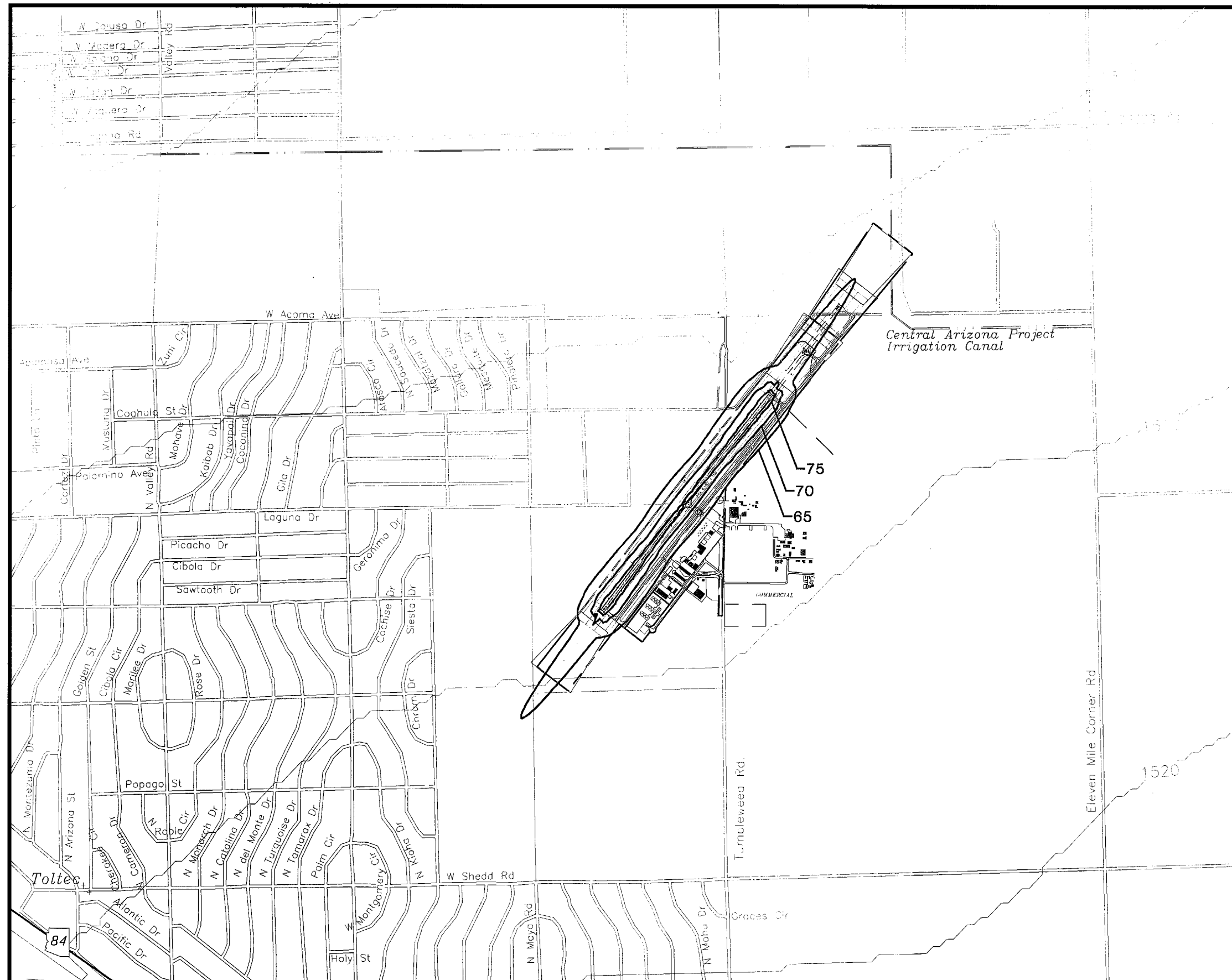
*Federal Aviation Regulation (FAR) Part 150* recommends guidelines for planning land use compatibility within various

levels of aircraft noise exposure (**Exhibit 7C, F.A.R. Part 150, Land Use Compatibility Guidelines**). As the name indicates, these are guidelines only; *FAR Part 150* explicitly states that determinations of noise compatibility and regulation of land use are purely local responsibilities.

These guidelines indicate that mobile home parks, outdoor music shells and amphitheaters are incompatible within areas affected by noise levels above 65 DNL. The federal guidelines note, however, that where local communities determine that these uses are permissible, sound attenuation measures should be used. Several other uses, including hospitals, nursing homes, churches, auditoriums, livestock breeding, amusement parks, resorts, and camps, are considered incompatible at levels above 75 DNL.

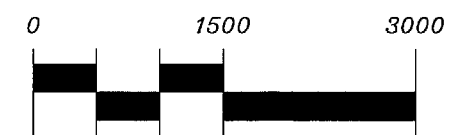
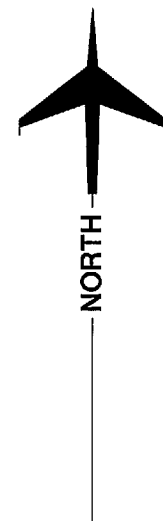
Experience has shown that new residential development should be prohibited in areas subject to noise exceeding 65 DNL, unless local conditions indicate that soundproofed residences would not be adversely impacted by noise. The most obvious condition would be the presence of high background noise levels which are often found in high-density urban areas.

Where existing residential uses occur, further expansion should be discouraged. Measures to mitigate noise impacts should be taken if further residential development cannot be prevented. In some communities where there is a severe shortage of developable land,



**LEGEND:**

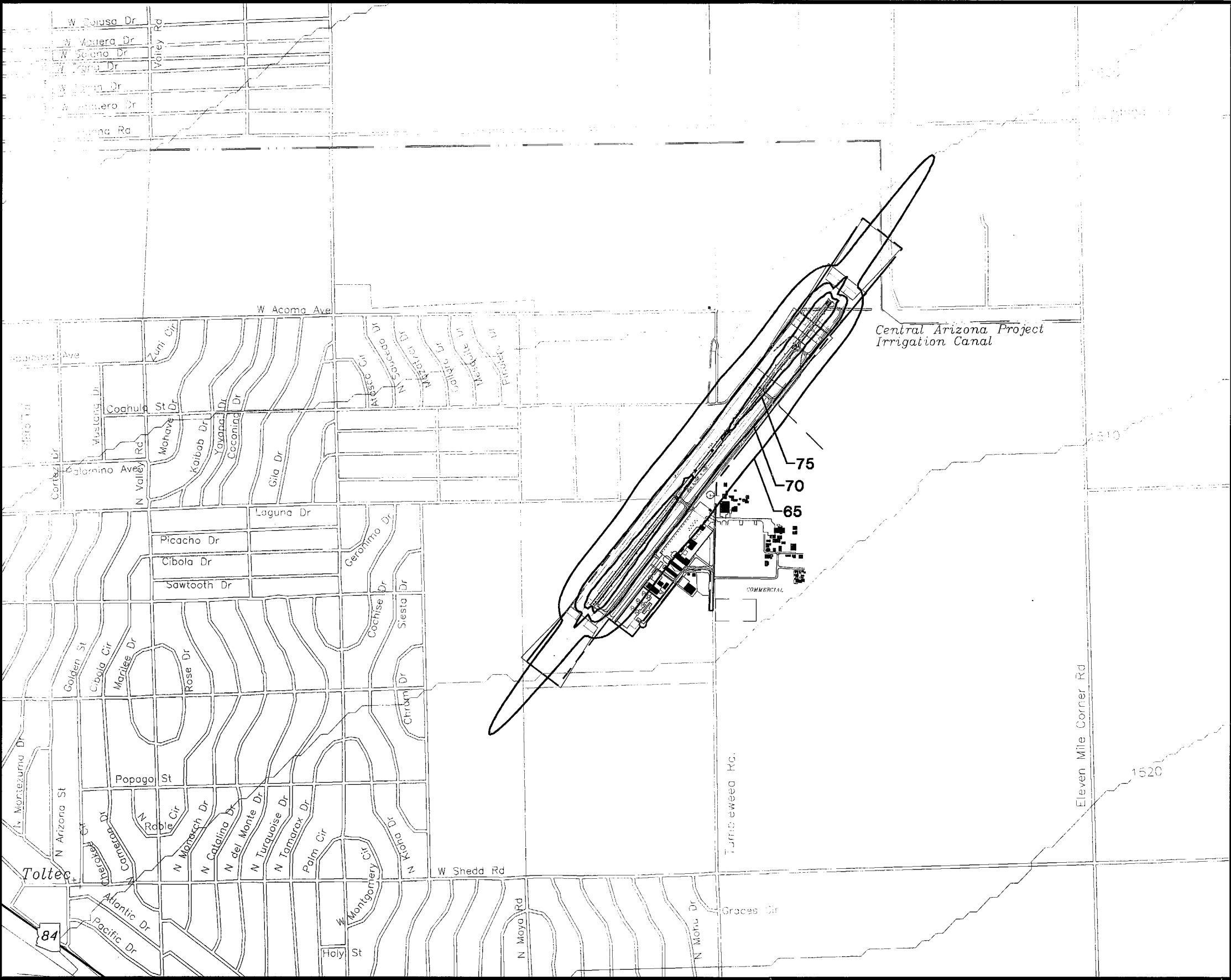
Note: DNL 65 is identified as the "threshold of incompatibility for both Federal and State agencies.



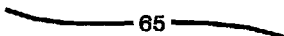


SCALE IN FEET



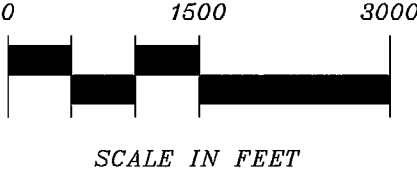
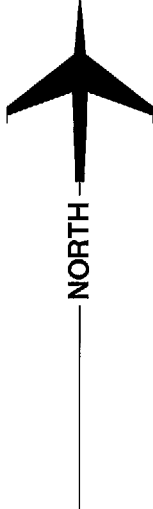




**LEGEND:**

-  DNL Noise Contour - 2015
-  Existing Airport Property Line
-  Ultimate Airport Property Line

Note: DNL 65 is identified as the "threshold of incompatibility for both Federal and State agencies."



LAND USE	Yearly Day-Night Average Sound Level (DNL) in Decibels					
	Below 65	65-70	70-75	75-80	80-85	Over 85
<b>RESIDENTIAL</b>						
Residential, other than mobile homes and transient lodgings	Y	N <sup>1</sup>	N <sup>1</sup>	N	N	N
Mobile home parks	Y	N	N	N	N	N
Transient lodgings	Y	N <sup>1</sup>	N <sup>1</sup>	N <sup>1</sup>	N	N
<b>PUBLIC USE</b>						
Schools	Y	N <sup>1</sup>	N <sup>1</sup>	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Government services	Y	Y	25	30	N	N
Transportation	Y	Y	Y <sup>2</sup>	Y <sup>3</sup>	Y <sup>4</sup>	Y <sup>4</sup>
Parking	Y	Y	Y <sup>2</sup>	Y <sup>3</sup>	Y <sup>4</sup>	N
<b>COMMERCIAL USE</b>						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail-building materials, hardware and farm equipment	Y	Y	Y <sup>2</sup>	Y <sup>3</sup>	Y <sup>4</sup>	N
Retail trade-general	Y	Y	25	30	N	N
Utilities	Y	Y	Y <sup>2</sup>	Y <sup>3</sup>	Y <sup>4</sup>	N
Communication	Y	Y	25	30	N	N
<b>MANUFACTURING AND PRODUCTION</b>						
Manufacturing, general	Y	Y	Y <sup>2</sup>	Y <sup>3</sup>	Y <sup>4</sup>	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y <sup>6</sup>	Y <sup>7</sup>	Y <sup>8</sup>	Y <sup>8</sup>	Y <sup>8</sup>
Livestock farming and breeding	Y	Y <sup>6</sup>	Y <sup>7</sup>	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
<b>RECREATIONAL</b>						
Outdoor sports arenas and spectator sports	Y	Y <sup>5</sup>	Y <sup>5</sup>	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts, and camps	Y	Y	Y	N	N	N
Golf courses, riding stables, and water recreation	Y	Y	25	30	N	N

The designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

See other side for notes and key to table.



## KEY

<b>Y (Yes)</b>	Land Use and related structures compatible without restrictions.
<b>N (No)</b>	Land Use and related structures are not compatible and should be prohibited.
<b>NLR</b>	Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
<b>25, 30, 35</b>	Land Use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated into design and construction of structure.

## NOTES

- 1 Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10, or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.
- 2 Measures to achieve NLR of 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.
- 3 Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.
- 4 Measures to achieve NLR of 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.
- 5 Land use compatible provided special sound reinforcement systems are installed.
- 6 Residential buildings require a NLR of 25.
- 7 Residential buildings require a NLR of 30.
- 8 Residential buildings not permitted.

Source: **F.A.R. Part 150, Appendix A, Table 1.**



local governments often are compelled to permit more residential development within the 65 DNL contour. In such cases, the FAA strongly recommends soundproofing. A requirement for noise easements as a condition of development approval might also be desirable.

Based on the results of the noise modeling efforts, neither the 2000 nor the 2015 65 DNL noise contours extend over any residential areas or noise-sensitive land uses. Land uses encompassed by both 65 DNL contours are agricultural fields and undeveloped desert.

## **SOCIAL IMPACTS**

Social impacts known to result from airport improvement projects are often associated with the relocation of residences or businesses or other community disruptions. Development of the proposed improvements will not result in the relocation or removal of any residence or off-airport business.

Land acquisition is required to extend the runway and develop the proposed T-hangar area. These parcels are currently undeveloped. Land acquisition will have to be completed in compliance with the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970* (URARPAPA). This is a federal act requiring that property owners be given fair market value and, as necessary and appropriate, assistance with relocation expenses, including finding another suitable home/business site and moving

expenses. The City of Eloy will need to comply with *FAA Order 5100.37A, Land Acquisition and Relocation Assistance for Airport Projects*, and *FAA Advisory Circular 150/5100-17, Land Acquisition and Relocation Assistance for Airport Improvement Program Assisted Projects*. These two documents describe the process necessary to comply with URARPAPA.

Given the location of the land acquisition, the proposed development is not anticipated to divide or disrupt an established community, interfere with orderly planned development, or create a short-term, appreciable change in employment.

Implementation of the proposed development program will not result in significant social impacts.

## **INDUCED SOCIOECONOMIC IMPACTS**

Induced socioeconomic impacts address those secondary impacts to surrounding communities resulting from the proposed development, including shifts in patterns of population movement and growth, public service demands, and changes in business and economic activity to the extent influenced by the airport development. According to *FAA Order 5050.4A*, "Induced impacts will normally not be significant except where there are also significant impacts in other categories, especially noise, land use or direct social impacts."

Significant shifts in patterns of population movement or growth or public service demands are not anticipated as a result of the proposed development. It is expected, however, that the proposed new Airport development would potentially induce positive socioeconomic impacts for the community over a period of years. The Airport, with expanded facilities and services would be expected to attract additional users. It is expected to encourage tourism, industry, and trade and to enhance the future growth and expansion of the community's economic base. Future socioeconomic impacts resulting from the proposed development would be expected to be primarily positive in nature.

Implementation of the proposed development program will not result in significant socioeconomic impacts. Any impacts are expected to be beneficial to the region.

## AIR QUALITY

The federal government has established a set of health-based ambient air quality standards (NAAQS) for the following six pollutants: carbon monoxide (CO), nitrogen dioxide (NO<sub>x</sub>), sulphur dioxide (SO<sub>x</sub>), ozone, lead, and PM10 (particulate matter of 10 microns or smaller). Eloy Municipal Airport is located in an area classified as in attainment for all NAAQS criteria.

According to *FAA Order 5050.4A* and the handbook "Air Quality Procedures for

Civilian Airports and Air Force Bases" Report No. FAA-EE-97-03, if the proposed development is in a region which does not have applicable indirect source review (ISR) requirements, as with the Eloy area, then projected airport activity levels are examined. An air quality analysis is not required for Eloy Municipal Airport since the Airport had only approximately 52,200 operations in 2000 and is forecasted to increase to only 119,000 in 2015, both substantially below the 180,000 annual general aviation operations threshold. No commercial service operations or enplanements are projected.

A conformity analysis with the Federal Clean Air Act is not required because the Airport is located within an attainment area for all NAAQS pollutants.

Eloy Municipal Airport is located within the jurisdiction of the Pinal County air Quality Control District. In correspondence received from the agency, they concluded that "none of those improvements would directly trigger any regulatory concern on our behalf."

Finally, pursuant to *FAA Order 5050.4A*, the 1982 Airport Act requires that Airport Improvement Program applications for projects involving a major runway extension not be approved unless the governor of the state in which the project is located certifies that there is "reasonable assurance" that the project will be located, designed, constructed, and operated in compliance with applicable air and water quality

standards. A "major runway extension is defined as one that results in a significant impact (as defined in the Order) in any of the following categories: Noise, U.S. DOT Section 4(f) Lands, Historical or Cultural Resources, Farmland, Wetlands, Coastal Zones, Floodplain, or Endangered and Threatened Species. As indicated elsewhere in this Chapter, potentially significant impacts to U.S. DOT Section 4(f) lands and cultural resources will occur with development of the runway extension to the north; therefore, an air quality certificate is likely to be required. The certificate will need to be sought during the NEPA review process.

Even with the requirement for air quality certification, implementation of the proposed development program is not expected to result in significant impacts to air quality in the region.

## **WATER QUALITY**

Water quality concerns, related to airport expansion most often relate to domestic sewage disposal, increased surface runoff and soil erosion, and the storage and handling of fuel, petroleum, solvents, etc.

Water services are provided by the City of Eloy. Wastewater is treated via three septic tanks located in association with the hangar buildings. The City plans to upgrade the main waterlines to the airport in order to improve fire flows. In addition, the City plans to construct a wastewater treatment facility west of the

airport which will ultimately provide service to the airport. Both of these projects support the airport and additional airport development.

Eloy Municipal Airport currently supports a self service fuel storage facility which utilizes separate 6,000-gallon tanks to store 100 LL Avgas and Jet-A fuel. Separate fuel storage is maintained by the off-airport aerial applicators and Skydive Arizona. No new fuel storage facilities are currently proposed.

Construction of the proposed improvements will result in an increase in impermeable surfaces and a resulting increase in surface runoff from both landside and airside facilities. The proposed development might result in short-term impacts on water quality, particularly suspended sediments, during and shortly after precipitation events during the construction phase. Recommendations established in FAA Advisory Circular 150/5370-10 *Standards for Specifying Construction of Airports, Item P-156, Temporary Air and Water Pollution, Soil Erosion and Siltation Control* should be incorporated in project design specifications to mitigate potential impacts. These standards include temporary measures to control water pollution, soil erosion, and siltation through the use of fiber mats, gravel, mulches, slope drains, and other erosion control methods.

In accordance with Section 402(p) of the *Clean Water Act*, as added by Section 405 of the *Water Quality Act of 1987*, to operate the Airport facility, a *National*

*Pollution Discharge Elimination System* (NPDES) General Permit is required from the Environmental Protection Agency. NPDES requirements apply to industrial facilities, including airports. In addition, all construction projects that disturb one or more acres of land is required to obtain a NPDES Construction Permit.

With regard to construction activities, the city of Eloy and all applicable contractors will need to comply with the requirements and procedures of the NPDES General Permit, including the preparation of a *Notice of Intent* and a *Stormwater Pollution Prevention Plan*, prior to the initiation of project construction activities.

The construction program, as well as specific characteristics of project design, should incorporate *Best Management Practices* (BMPs) to reduce erosion, minimize sedimentation, control non-stormwater discharges, and protect the quality of surface water features potentially affected. BMPs are defined as nonstructural and structural practices that provide the most efficient and practical means of reducing or preventing pollution of stormwater. The selection of these practices at Eloy Municipal Airport should be based on the site's characteristics and focus on those categories of erosion factors within the contractor's control, including: (1) construction scheduling, (2) limiting exposed areas, (3) runoff velocity reduction, (4) sediment trapping, and (5) good housekeeping practices. Inspections of the construction site and associated reporting may be required.

Finally, as discussed under Air Quality, water quality certification is expected to be required for the planned runway extension. This certificate would be obtained at the time of NEPA compliance.

With implementation of mitigation measures to reduce stormwater runoff and erosion during construction, implementation of the proposed development program is not expected to result in significant water quality impacts.

#### **U.S. DEPARTMENT OF TRANSPORTATION ACT, SECTION 4(F) LANDS**

Section 4(f) of the U.S. Department of Transportation Act addresses either direct or indirect impacts to publicly-owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or any land from an historic site of national, state, or local significance, unless there is no feasible and prudent alternative to the use of such land.

According to *FAA Order 5050.4A*, Section 4(f) of the U.S. DOT Act applies either if there is an actual physical taking or if there is the possibility of use of or adverse impacts to property classified as Section 4(f) land. Use or adverse impacts are defined as action which would conflict with or be incompatible with the normal activity associated with the land. A development action is compatible with Section 4(f) lands if it

would not affect the normal activity or aesthetic value of a public park, recreation area, refuge, or historic site.

Within the immediate vicinity of Eloy Municipal Airport is one site which is subject to Section 4(f). The extent of the site is currently unknown and requires subsurface testing and survey work to determine. While the site is not currently listed on the National Register of Historic Places, it is potentially eligible for listing, granting it the same level of protection.

Construction of the proposed runway extension and grading of the airfield area are expected to directly impact the subject site. This is considered to be both a use of and an adverse impact to Section 4(f) lands. As a result, as required by the act, impacts to this area can only be permitted if there is no feasible or prudent alternative which either has a lesser or no impact to the designated Section 4(f) property.

Section 4(f) impacts are considered separately from the other related environmental categories, such that, while it may be possible, under the section titled *Historic, Architectural, Archaeological, and Cultural Resources*, to identify adequate mitigation measures to reduce the impacts to the subject site to a level of less-than-significant (by providing for subsurface survey and data recovery), the Section 4(f) impact would still be classified as significant. Mitigation, other than avoidance, of impacts to Section 4(f) lands is only considered when there is no feasible or prudent alternative to the use of the site.

No Section 4(f) impacts would occur if the runway extension occurred to the south, instead of to the north.

Development of the other proposed improvements at Eloy Municipal Airport, including the roadways, terminal building, and hangars, will have no effect on designated Section 4(f) properties.

### **HISTORIC, ARCHITECTURAL, ARCHAEOLOGICAL AND CULTURAL RESOURCES**

Determination of a project's environmental impact to historic and cultural resources is made under guidance in the *National Historic Preservation Act of 1966*, as amended, and the *Archaeological and Historic Preservation Act of 1974*.

Section 106 of the *National Historic Preservation Act of 1966* (NHPA), as amended, requires Federal agencies to take into account the effects of their undertakings on historic properties and determine if any properties in or eligible for inclusion in the national Register of Historic Places are present in the area. In addition, it affords the Advisory Council on Historic Preservation a reasonable opportunity to comment. The historic preservation review process mandated by Section 106 is outlined in regulations issued by the Council. The current regulations, *Protection of Historic Properties* (36 CFR Part 800), became effective June 17, 1999. The regulations replace the 1986 procedures and significantly modify the Section 106



review process, introducing new streamlining while incorporating statutory changes mandated by the 1992 amendments to the NHPA.

The *Archaeological and Historic Preservation Act of 1974* (AHPA) describes the process when consultation with resource agencies indicate that there may be an impact on significant scientific, prehistoric, historic, archaeological, or paleontological resources. The process provides for the preparation of a professional resource survey of the area to be prepared. Should the survey identify significant resources, the National Register process described above is followed. Should the survey be inconclusive, a determination is made whether it is appropriate to provide a commitment to halt construction if resources are uncovered in order for a qualified professional to evaluate their importance and provide for data recovery, as necessary.

In 1990, as part of the preparation of a Preliminary Draft Environmental Assessment for a runway extension at Eloy Municipal Airport, SWCA, Inc. completed an Archaeological Resource Survey of the area north of the runway. They identified one site which was potentially eligible for listing on the National Register of Historic Places. SWCA recommended the site be avoided; if this was not possible, archaeological testing would be required.

In 1998, as part of a proposed Environmental Assessment, Archaeological Consulting Services, Inc.

(ACS) was contracted to perform an Archaeological Resource Survey of additional properties in the vicinity of Eloy Municipal Airport, mapped as three separate parcels. This study surveyed both areas north and south of the existing runway centerline and the area planned for landside improvements. The results of this survey expanded the boundaries of the site originally identified in 1990, but found no new sites eligible for listing on the National Register. ACS recommended the site be avoided; if this was not possible, they recommended additional archaeological testing be performed.

Coordination with the Arizona State Historic Preservation Office (SHPO) has occurred in relation to this project. In a September 1997 response to the initial agency coordination request, the SHPO confirmed that the identified site north of the airport is considered eligible for inclusion on the National Register of Historic Places. They noted that, back in 1991, they had recommended archaeological excavations of the area to be impacted, and that the project was subsequently dropped. In a second response, in October 1997, the SHPO noted that, because of known sites in the vicinity of Eloy Municipal Airport, there was a greater than usual chance of other sites being in the area and recommended a survey of all areas to be impacted by the proposed project that had not been previously surveyed.

In November 1998, upon receipt of the ACS report, the SHPO identified that archaeological testing of the site to the

north would be necessary in order to determine whether or not intact subsurface archaeological deposits were present and would be disturbed by the proposed expansion. The letter continued that the SHPO preferred the alternative which provided for the runway expansion to take place exclusively at the south end in order to avoid the identified archaeological site on the north end. If this was not possible, the additional archaeological investigation would be necessary prior to further pursuing this alternative.

Impacts to historic and cultural resources resulting from implementation of the runway extension are considered potentially significant. Further survey work and possibly data recovery activities are required. No impacts to historical/ cultural resources are expected with implementation of the remaining development program items.

#### **BIOTIC COMMUNITIES AND THREATENED AND ENDANGERED SPECIES**

As part of this evaluation, the U.S. Department of the Interior, Fish and Wildlife Service (USFWS) and the Arizona Game and Fish Department (AGFD) were contacted to request information regarding potential impacts to threatened or endangered species or species of special concern.

According to correspondence received from AGFD, "The Department's Heritage Data Management System has been

accessed and current records show that no special status species have been documented as occurring in the project vicinity."

The USFWS provided a listing of all species in Pinal County that are either listed or candidates for listing under the Endangered species Act of 1973. These species potentially occur anywhere in the County, and are not necessarily found in the vicinity of Eloy Municipal Airport. The following species are known to occupy desert habitat, such as is found north of the airfield. A Biological Assessment may be required to determine whether these species are present in the area of acquisition/impact for the proposed runway extension.

- Nichol's Turk's Head Cactus (*echinocactus horizonthalonius var nicholii*) – E – Habitat is Sonoran desert scrub.
- Lesser Long-nosed Bat (*leptonycteris curasoe yerbabuenae*) – E – Habitat is desert scrub with agave and columnar cacti present as food plants.
- Cactus Ferruginous Pygmy-owl (*glauclidium brasilianum cactorum*) – E – Habitat is mature cottonwood/willow, mesquite bosques, and Sonoran desert scrub.

A number of other protected species are also present in Pinal County, but their required habitat is clearly not present at Eloy Municipal Airport.

- Arizona Hedgehog Cactus (*echinocereu triglochidiatus*

*arizonicus*) – endangered (E) – Habitat is in area between interior chaparral and Madrean evergreen woodland.

- Desert Pupfish (*cyprinodon macularius*) – E – Habitat is shallow springs, small streams, and marshes.
- Gila Topminnow (*poeciliopsis occidentalis occidentalis*) – E – Habitat is small streams, springs, and cienegas vegetated shallows.
- Loach Minnow (*tiaroga cobitis*) – Threatened (T) – Habitat is small to large perennial streams.
- Razorback Sucker (*xyrauchen texanus*) – E – Habitat is riverine and lacustrine areas.
- Spikedace (*meda fulgida*) – T – Habitat is moderate to large perennial streams.
- Bald Eagle (*haliaeetus leucocephalus*) – T – Habitat is large trees or cliffs near water.
- Mexican spotted owl (*strix occidentalis lucida*) – T – Habitat is canyons and dense forest with multi-layered foliage.
- Southwestern Willow Flycatcher (*empidonax traillii extimus*) – E – Habitat is cottonwood/willow and tamarisk vegetation communities along rivers and streams.
- Yuma Clapper Rail (*rallus longirostris yumanensis*) – E – Habitat is fresh water and brackish marshes.

Since the original agency coordination, the American Peregrine Falcon, included on the USFWS correspondence, was removed from the list of endangered species.

Correspondence received during the preparation of the 1990/1991 Preliminary Draft Environmental Assessment, included a letter from the USFWS which indicated that the area around the airport contained no wetland areas or habitat for any species of special concern and that the project would have minimal impact on wildlife. Because that correspondence is 10 years old, it cannot be fully relied upon; however, it indicates that it is unlikely that the project will impact protected species.

Completion of a biological assessment will likely be required to fully determine the impacts to biological communities and protected species resulting from the runway extension. This survey should be completed as part of NEPA compliance for the runway extension.

#### **WETLANDS AND WATERS OF THE U.S.**

The U.S. Army Corps of Engineers (ACOE) regulates the discharge of dredged and/or fill material into waters of the United States, including adjacent wetlands, under Section 404 of the Clean Water Act. Wetlands are defined by *Executive Order 11990, Protection of Wetlands*, as “those areas that are inundated by surface or groundwater with a frequency sufficient to support and under normal circumstances does or would support a prevalence of vegetation or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction.”

Categories of wetlands include swamps, marshes, bogs, sloughs, potholes, wet meadows, river overflows, mud flats, natural ponds, estuarine area, tidal overflows, and shallow lakes and ponds with emergent vegetation. Wetlands exhibit three characteristics: hydrology, hydrophytes (plants able to tolerate various degrees of flooding or frequent saturation), and poorly drained soils. Waters of the U.S. also include washes.

Correspondence from the U.S. Department of the Army indicates that "since there are not waters of the United States within the aforementioned proposed project area, no Section 404 permit is required from our office."

No impact to wetlands or waters of the U.S. are anticipated with implementation of the proposed projects.

## **FLOODPLAINS**

As defined in *FAA Order 5050.4A*, floodplains consist of "lowland and relatively flat areas adjoining inland and coastal water including flood prone areas of offshore islands, including at a minimum, that area subject to a one percent or greater chance of flooding in any given year." Federal agencies are directed to take action to reduce the risk of flood loss, minimize the impact of floods on human safety, health and welfare, and restore and preserve the natural and beneficial values served by floodplains. Floodplains have natural and beneficial values, such as providing ground water recharge, water quality

maintenance, fish, wildlife, plants, open space, natural beauty, outdoor recreation, agriculture and forestry. *FAA Order 5050.4A (12)(c)* indicates that if the proposed project is "not within the limits of a base floodplain (100-year flood area)," then it may be assumed that there are no floodplain impacts. The limits of base floodplains are determined by Flood Insurance Rate Maps (FIRM) prepared by the Federal Emergency Management Agency (FEMA).

Eloy Municipal Airport is not located within the limits of a 100-year floodplain.

No impact to floodplains are expected to occur with implementation of the proposed development program.

## **COASTAL MANAGEMENT PROGRAM AND COASTAL BARRIERS**

The proposed development of Eloy Municipal Airport is not located within the jurisdiction of a State Coastal Management Program. The Coastal Zone Barrier resources system consists of undeveloped coastal barriers along the Atlantic and Gulf Coasts. These resources are outside of the sphere of influence of Eloy Municipal Airport and its vicinity, and do not apply to the proposed development.

No impact to coastal management areas or coastal barriers will occur with implementation of the proposed development program.

## **WILD AND SCENIC RIVERS**

According to the National Park Service's list of Wild and Scenic Rivers, there are no wild and scenic rivers located within the vicinity of the proposed development at Eloy Municipal Airport; therefore, no impacts to wild and scenic rivers are anticipated as a result of airport development.

No impact to designated wild and scenic rivers will occur with implementation of the proposed development program.

## **FARMLAND**

The United States Department of Agriculture, National Resources Conservation Service (NRCS) has general responsibility, nationwide, for implementing the Farmland Protection Policy Act (FPPA). The NRCS reviews projects that may affect prime farmland and wetlands associated with agriculture.

According to correspondence received from the NRCS, they "do not see any immediate impacts that would directly affect prime farmland or wetland areas associated with agricultural activity." They did identify the presence of less than 10 acres of prime farmland to the southwest of the airport, but noted "since this size is determined to have a minimal impact on the total prime farmland acreage in the area, it will be considered exempt from requirements of the FPPA."

No impact to prime or unique farmland is expected to occur with implementation of the proposed development program.

## **ENERGY SUPPLY AND NATURAL RESOURCES**

No energy supply facilities are currently present or proposed at Eloy Municipal Airport. Electricity to the airport is currently provided by Arizona Public Service. Natural gas service is provided by Southwest Gas.

Energy requirements associated with the operation of the airport or related expansion generally fall into two categories: (1) those which relate to changed demands for stationary facilities (e.g., airfield lighting and terminal building heating) and (2) those which involve the movement of air and ground vehicles (e.g., fuel consumption). In addition to fuel, the use of natural resources includes construction materials, water and manpower.

Implementation of the proposed development program would likely result in an incremental increase in energy demand. Electricity will be necessary to operate the extended runway and taxiway lights and to provide security lighting to the landside facilities. In addition, short-term expenditures of additional electricity, fuel, oil, chemicals, water, manpower, and other forms of energy and natural resources will be

necessary to construct the extension of the airport's runway and taxiway, and other facility improvements. Long-term impacts will occur in order to allow for continued maintenance and operation of airport facilities.

Impacts to natural resources and energy supply resulting from the proposed improvements are expected to be less-than-significant.

### **LIGHT EMISSIONS**

Airport lighting is an essential element to efficient and safe aircraft operations at an airport during periods of darkness or climatic-related poor visibility. Lighting aids can include: identification lighting (airport beacon), runway/taxiway lighting (e.g., MIRLs/MITLs), lighted airport (runway/taxiway) signage, visual approach lighting (VASIs/PAPIs), and runway end identification lights (REILs) or runway threshold lights.

The proposed lighting improvements for the 20-year development plan include the extension of MIRLs, and the installation of precision approach path indicators (PAPIs), runway threshold lights (REILs), and Medium Intensity Taxiway Lighting (MITL). It is also anticipated that outdoor security lighting would be installed within the landside development area, including automobile parking areas, aircraft parking apron and surrounding the terminal and all hangars.

Because of the distance from the Airport to light-sensitive land uses, impacts associated with any new light emissions are not expected to be significant.

### **SOLID WASTE**

An increase in the generation of solid waste is anticipated as a result of the proposed development and overall growth in aviation activity at the Airport. The implementation of the proposed airport development is not expected to result in any substantial increases in the generation of solid waste; therefore, no significant impacts to the capacity of the local solid waste facility is expected as a result of this project.

Furthermore, because landfills can attract birds for feeding, the location of landfills near airports is not desired. For the type of aircraft which are expected to operate at Eloy Municipal Airport in the future, the FAA recommended separation distance between an airport and any such wildlife attractant is 10,000 feet (1.9 miles) from any aircraft movement area and five miles off the approach and departure ends of the runway. According to correspondence received from the Pinal County Department of Solid Waste, the only active landfills/transfer stations in the vicinity of the airport are the Eloy Landfill and Picacho Transfer Station. The Eloy Landfill is located approximately 3 miles south of the

airport. The Picacho Transfer Station is located in Picacho, well outside of the separation distance.

Impacts to solid waste facilities are expected to be less-than-significant.

## CONSTRUCTION IMPACTS

Construction activities have the potential to create temporary environmental impacts at an airport. These impacts primarily relate to noise resulting from heavy construction equipment, fugitive dust emissions resulting from construction activities, and potential impacts on water quality from runoff and soil erosion from exposed surfaces.

A temporary increase in particulate emissions and fugitive dust may result from construction activities. The use of temporary dirt access roads would increase the generation of particulates. Dust control measures, such as watering exposed soil areas, will need to be implemented to minimize this localized impact. In correspondence received from the Arizona Department of Environmental Quality (ADEQ), they recommended a number of preventative and mitigative measure to minimize the possible particulate air pollution and sediment in stormwater runoff.

In addition, the provisions contained in *FAA Advisory Circular 150/5370-10, Standards for Specifying Construction of Airports, Temporary Air and Water Pollution, Soil Erosion, and Siltation Control* will be incorporated into all project specifications. During

construction, temporary dikes, basins, and ditches should be utilized to control soil erosion and sedimentation and prevent degradation of off-airport surface water quality. After construction is complete, slopes and denuded areas should be reseeded to aid in the vegetation process.

As previously discussed in the **Water Quality** section, the project design and construction of the proposed development will incorporate Best Management Practices (BMPs) to reduce erosion, minimize sedimentation, and control non-storm water discharges, in order to protect the quality of surface water features on and off the airport. In review, BMPs are defined as nonstructural and structural practices that provide the most efficient and practical means of reducing or preventing pollution of storm water.

With the implementation of mitigation measures to reduce fugitive dust and the potential for stormwater runoff erosion, impacts from construction activities are expected to be less-than-significant.

## OTHER

Implementation of the runway extension to the north requires relocation or bridging of an irrigation canal. The proposed ultimate runway end and related Runway Safety Area/Object Free Area will cross an existing canal. The canal provides irrigation water to the farmlands on the west and southwest sides of the Airport.

Bridging or relocating the canal would not result in a significant impact as long as irrigation water remained accessible to the local farmers throughout the construction period.

## **CONCLUSION**

Based on the review of correspondence provided by various federal, state and local agencies, potential environmental issues and considerations anticipated as a result of the development and operation of Eloy Municipal Airport have been identified. These issues and considerations include the following:

**Air Quality** - Runway extension will likely require air quality certification in order to comply with NEPA requirements.

**Water Quality** - Runway extension will likely require water quality certification in order to comply with NEPA requirements.

**U.S. DOT Act, Section 4(f)** - A runway extension to the north results in direct use of a site considered of State and National historical significance; this is

considered a significant impact and will require special documentation before development can occur.

**Historical/Cultural Resources** - Sub-surface survey and possibly data recovery is required prior to further consideration of a runway extension to the north. Tribal coordination is also required. Because of the role of Section 4(f), this additional survey work may not be practical or reasonable to pursue. Additional coordination between the FAA and the SHPO is required before a determination is made.

**Biotic Communities and Threatened and Endangered Species** - A biological assessment may be required to evaluate potential impacts to three native species which may be present within the project area.

As a result of the NEPA process, mitigation measures may be recommended to limit the potential impacts related to a number of these resources. Please note that as more specific information is gathered through a formal EA process, additional issues may arise.